

Appl. No. 10/708,783
Amtd. dated July 25, 2005
Reply to Office action of April 18, 2005

REMARKS/ARGUMENTS

1. Claims 1-4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steffan et al. (U.S. Pat. No. 6338001) in view of 5 Chen et al. (U.S. Pat. No. 5862055).

Response:

10 Claims 1-4, 6, and 7 have been canceled, and so are no longer in need of consideration.

2. Claim 5 is rejected under 35 U.S.C 103(a) as being unpatentable over Steffan et al. (U.S. Pat. No. 6338001) in view of Chen et al. (U.S. Pat. No. 5862055), as applied to Claim 4 above, and further 15 in view of Dor et al. (U.S. Pub. No. 20020072162).

Response:

20 Claim 5 has been canceled, and so is no longer in need of consideration.

3. Introduction to new claim 8:

25 No new matter has been introduced by the new claim 8, and the new claim 8 is fully supported by the specification and figures as filed (Paragraphs [0017], [0018]).

Claim 8 is added to emphasize the application that uses product wafers as monitor wafer. The benefit of using product wafers can

Appl. No. 10/708,783
Amtd. dated July 25, 2005
Reply to Office action of April 18, 2005

immediately find problems of a machine in the semiconductor process. The ADC saves database of probably defect types of every layer process so that using product wafer as monitoring wafer can filtering pre-layer defects by ADC, and can immediately analyze if the detected defects contains high kill ratio defect or not after separating the pre-layer defects from the detected defects. If yes, the machine is immediately stopped to detect so as to the problems of the machine can be solved. Due to the ADC is a non-destructive test, the product wafer is not influenced and can be continuously run in the next fabrication process.

Regarding to prior art, it uses bare wafers as monitor wafers. In the daily check, bare wafers are used to detect for checking the performance of machines. However, when killer defects produced by a machine are found, the machine have ran hundreds batch wafers and which may all have killer defects. Therefore, prior-art methods have to take a long time to find out defects and the problem machine, and to resolve the problem.

According to Steffan et al.'s disclosure, a method of manufacturing and inspecting semiconductor devices wherein defects on inspection wafers are tabulated (abstract). Also, the ADC is used to classify kill ratio and calculate die health (col.3, lines 32-42). Therefore, the function and purpose of Steffan et al.'s disclosure is for analyzing kill ratio of wafers and measuring yield of wafers and not for monitoring a machine.

In addition, according of Chen et al.'s disclosure, they disclose a